

5. The Examiner cited a prior art reference of "Davidson et al." (Davidson") (US '522)." The Applicant understands that the Examiner will no longer provide a copy of the patents that are cited by the Examiner in regards to the prior art of the patent application. But the Applicant is a pro se Applicant and has attempted to find the exact Davidson et al. that the Examiner has cited by using the only information provided by the Examiner (Davidson) (US '522). The Applicant has found 2 different Davidson et al. patents. One is Davidson US patent 4,886,522 dated December 12, 1989 and another is Davidson US patent 5,238,629 dated August 24, 1993. The Applicant is assuming that that Examiner is citing the Davidson US patent 4,886,522 that corresponds to the US 522 and this assumption is based on other statements found on page 2 and page 3 of the Examiner's last detailed action containing the final rejection. The Applicant will speak to both Davidson patents in regard to the anticipated prior art amending of the present claims. The Davidson patent number 4,886,522 will be referred to by the Applicant as Davidson desulfurization and the Davidson patent number 5,238,629 will be referred to by the Applicant as Davidson agglomeration. **If there is another Davidson patent reference that the Examiner intended to cite the Applicant requests that the Examiner please inform the Applicant with the complete patent number.** Copies of the two patents are enclosed and marked.

The Examiner states that "claims 18, 19, 23 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Davidson et al.

The Examiner states "regarding claims 18 and 19, Davidson teaches a method of separating comprising subjecting non-atomically bonded substances (coal particulates in alcohol suspension) to a chemical reaction (addition of reagent and catalyst: col.5, In.27-col.6, In. 43), wherein the molecular structure in said substances is altered by the removal of sulfur and is recovered using mechanical means (membrane cell) (col.6, In.43).

Regarding claims 23 and 28, it is implicit that the removal of the sulfur atoms alters the specific gravity of the coal particulates in the suspension."

The claims in the present application specifically state in the preamble of the independent claims 18, 19, or 20 "A method of separating a substance from a non-atomically bonded combination or mixture of substances" or "A method of separating cellulose from a non-aqueous non-atomically bonded combination or mixture of substances". The Davidson desulfurization patent specifically states that "the inclusion of sulfur in coal occurs in two forms. The first is inorganic, or pyritic, which generally occurs as pyrite, $\text{FeS}_{1.2}$, and associated compounds. The second is organic sulfur, which is sulfur that is linked to the hydrocarbon composition of the coal itself. The organic sulfur linkage is described in Davidson desulfurization in the first sentence under the heading organic sulfur removal process. The statement is "The organic sulfur in coal ore is covalently bonded to portions of the carbon skeletons found in the various compounds comprising the coal itself." (Enclosed patent copy citation: Number 1.) A covalent bond is an atomic bond so the removal of the organic sulfur from the coal requires separation of a substance (sulfur) from an atomic bond with coal. **A non-atomic bond is a specific boundary not claimed in the present invention and therefore, Davidson desulfurization does not anticipate the present invention.**

The pyritic sulfur removal described under the heading "Conditioning and Flotation" in Davidson sulfurization does not demonstrate or contain any chemical reaction that alters the molecule structure of any substance that is being separated. The reagents to condition or promote sedimentation or floatation do not alter the molecular structure. This is the froth floatation method discussed in other patents sent earlier to the Applicant by the Examiner. **This method does not use a chemical reaction to alter the molecular structure of a substance that is being separated. The chemical conditioning only allows for the surface to have more affinity for gas bubbles that are pumped into the mixture that increases the buoyancy of the coal but not the specific gravity. This is essentially froth floatation and Davidson sulfurization does not anticipate the present invention.**

Davidson agglomeration is a method to recover coal fines created when coal is randomly fractured during transport. Webster's Dictionary defines agglomeration as 1. Act of massing together. 2. A clump or cluster of things gathered into a ball or mass. Davidson agglomeration is a method to cause small coal particles to clump together in a mass so they can be compressed into usable small pellets and not wasted. **There is no chemical reaction that alters a molecular structure in the Davidson agglomeration invention. Clumping together is not claimed in the present invention and instead the present invention requires a chemical reaction that alters a molecular structure of substance to be separated. Therefore, Davidson agglomeration does not anticipate the present invention claimed.**

6. Claims 23 and 28 are not relevant to either Davidson desulfurization or Davidson agglomeration. Davidson agglomeration does not alter the specific gravity of a substance by using a chemical reaction to alter the molecular structure of a substance to be separated. Davidson desulfurization uses a chemical reaction to "break" an atomic bond between coal and sulfur. In both preambles of independent claims 18 and 19 and in both dependent claims 23 and 28 it is specifically stated that the claims pertain to non-atomically bonded combination or mixture of substances. The claims also clearly state there must be a chemical reaction that alters the molecular structure of a substance being separated. Neither the clumping of the Davidson agglomeration or the removal of pyritic sulfur in Davidson desulfurization uses a chemical reaction to alter the molecular structure of a substance to be separated.

7. Claims 25 and 30 are patentable over Davidson desulfurization or Davidson agglomeration. Davidson agglomeration does not discuss any magnetic separation. Davidson desulfurization uses magnetic separation to remove pyritic sulfur that already has iron (Fe) covalently bonded to the sulfur. This iron sulfur compound has not been subjected to a chemical reaction to alter the molecular structure of a substance being separated. The chemical reaction used in Davidson desulfurization is to break apart a covalent or atomic bond of coal and organic sulfur. In order for prior art to be within the scope of the present invention claimed there must

be a chemical reaction that alters the molecular structure of a substance to be separated from a non-atomically bonded combination or mixture of substances. Davidson desulfurization and Davidson agglomeration do not fall within the scope of the present invention claimed. The objective and scope of the present invention claimed is not take a substance that already has a magnet attraction and simply use a magnet to separate this substance from non-magnetic substances. The objective and scope of the present invention claimed is to use a chemical reaction to alter the molecular structure of a substance that would create a magnetic attraction for the substance that was not there originally and then use a magnet to separate the substance from a non-atomically bonded combination or mixture.

8. To demonstrate the difference of scope between the prior art cited by the Examiner and the present invention claimed the Applicant will attempt to use a modified scenario from Davidson desulfurization to explain the difference. In Davidson desulfurization the organic sulfur is covalently bonded to the coal and the pyritic sulfur is covalently bonded to iron atoms mixed in with the coal. For this explanation let us change the scenario just a little so that the organic sulfur is not covalently bonded to the coal or to the iron but is mixed in with the coal. One possible embodiment of the present invention would be to use a chemical reaction to covalently bond iron to the sulfur in the mixture but not to the coal. Then use magnetic separation to remove the newly formed pyritic sulfur from the coal. This would be within the scope of the present invention claimed.

9. Claims 21 and 26 should be allowed because their base claims (18 and 19 respectively) are not anticipated by Davidson desulfurization or Davidson agglomeration.

10. Claims 22, 24, 27, 29, 32 and 34 have been amended with regard to 35 U.S.C. 112. The term "any" has been substituted with "a". The phrase "the base solution" has been dropped completely. Claims 18, 19, and 20 have been amended to remove the unnecessary phrase "absent any chemical reaction" and substitute the word "a" in place of "any".